PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE HONORABLE BOARD OF PATENT
APPEALS AND INTERFERENCES

Application No.:	09/591,560
Filing Date:	June 9, 2000
Applicants:	Emad N. FARAG et al.
Group Art Unit:	2637
Examiner:	Edith Chang
Title:	METHOD AND APPARATUS FOR DYNAMICALLY ADJUSTING ACQUISITION SEARCH WINDOW
Conf No:	3532
Docket No:	29250-000326/US

APPEAL BRIEF

Customer Service Window
Randolph Building
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Alexandria, VA 22314
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May 9, 2005

Dear Sir:

Appellants submit herewith their Brief on Appeal as required by 37 C.F.R. 41.37.

TABLE OF CONTENTS

BRIEF ON BEHALF OF APPELLANT

Appellants appeal the Examiner's non-final Office Action mailed February 18, 2005, rejecting each of pending claims 1-16 of the present application, which appear in the attached Claim Appendix.

(1) REAL PARTY IN INTEREST:

The real party in interest is Lucent Technologies, Inc., as evidenced by the assignment recorded at reel 010890, frame 0376.

(2) RELATED APPEALS AND INTERFERENCES:

No related appeals or interferences are known.

(3) STATUS OF THE CLAIMS:

Claims 1-16 are pending in this application. Claims 1-16 stand rejected and are on appeal.

(4) STATUS OF ANY AMENDMENT:

No amendments have been filed subsequent to the February 18, 2005 Non-Final Office Action.

(5) SUMMARY OF CLAIMED SUBJECT MATTER:

a) Background

Fig. 2 illustrates a flow chart of a conventional approach of acquiring multipath component of packet data by moving between active and inactive periods of data transmission at a receiver. Detection of multipath components during movement of the mobile terminal during an active period (i.e., while packet data is being transmitted) is processed in a conventional manner by a searcher and rake finger management subsystems of a base station. More specifically, once a valid multipath component is acquired and assigned to a rake finger in the rake receiver, standard searches are performed in a known manner, using a standard search window associated with the rake finger having the strongest power. The standard search requests 200 are performed until the mobile terminal 102 goes into the inactive state, at which time the receiver loses contact with the mobile terminal 102.[1]

If data transmission stops (i.e., if an inactive period starts), as determined at 202 in Fig. 2, an acquisition search request at 204 is processed. Accordingly, when a mobile terminal switches from inactive to active states, the acquisition search request is needed to determine the location of the mobile terminal.

Fig. 3 illustrates an example of an acquisition search process 204 used by a conventional searcher subsystem. Referring to Fig. 3, a sample of a detected input signal 302 is multiplied in a known manner with a sample of a reference signal 304 equal in length to the input signal sample, using a multiplier 306. Both the input signal 302 and the reference signal 304 are complex digital (e.g., $(1 \pm j)$ and $-(1 \pm j)$). Accordingly, the result of multiplying input signal 302 and reference signal 304 results in a plurality of values which are summed by adder

[1] See Appellants' specification, page 3, line 16 – page 4, line 5.

308 in a known manner, thereby resulting in a certain total value over the entire sample. That total value is stored, for example, in memory register 310. Thereafter, the reference signal 304 is shifted by an arbitrary amount that is less than one chip (for example, one ½-chip) relative to the input signal 302 in a known manner by signal shift controller 312. The process of multiplying the input signal 302 and reference signal 304 (now shifted relative to each other) is then repeated. The summed value of that operation is also stored in memory register 310. The input signal 302 and reference signal 304 are then shifted incrementally again relative to each other.

Hence, the process of shifting the input and reference signals, multiplying the signals, and storing the result is repeated over the entire "width" of the conventional acquisition search window (which is, for example, a certain number of ½-chips). The conventional acquisition search window corresponds to a radius of the cell associated with the receiver (e.g., 10 km).[2]

Once the search over the entire acquisition search window is completed, the highest value stored in memory register 310 is identified in a known manner by a maximum value detector 314. That highest value is compared to a predetermined threshold value in a known manner by a discriminator 316. Exceeding the threshold value corresponds with acquisition of a new viable multipath component, thus indicating the end of the inactive period and the start of a new active period (step 206 in Figure 2). Therefore, a new standard search request (200 in Figure 2) is started, as discussed above.[3]

However, the conventional acquisition search window is substantially wider than the standard search window (to account for uncertainty in the location of the mobile terminal, which can be anywhere in the cell). That is, a wide acquisition search window leads to a longer

[2] See Appellants' specification, page 5, lines 14-19.
[3] See Appellants' specification, page 4, line 18 – page 6, line 5.

search time (because more cycles of signal shifting, multiplication, and value storage are required), which leads to a longer acquisition time for acquiring the channel in question. The width of the conventional acquisition search window is not adaptively associated with, for example, the length of the mobile terminal inactive period or the last known location of the mobile terminal.[4] Further, longer search times are problematic because when the mobile terminal enters an active state from an inactive state, a preamble is sent across the channel to the base station, prior to packet data transmission. Once transmission of the preamble is completed, the channel must be acquired and the channel and the receiver must be ready to receive the packet data transmission. If the receiver faisl to acquire the channel prior to packet data transmission, part of the packet data is lost.[5]

b) Invention Summary

Example embodiments of the present invention address the above problems by providing a relatively narrow initial acquisition search window in order to reduce channel acquisition time. This permits the use of a shorter preamble, which has the effect of speeding packet data transmission. In an example embodiment, the size of the acquisition search window may be dynamically widened in proportion to the length of the inactive period.[6] In other words, the proportionality between the width of the acquisition search window and the length of the inactive period may be related to an expected maximum speed of the mobile terminal.

Referring to Fig. 6, the initial acquisition search window 500 starts at W_{0s} and ends at W_{0e}. The width and location of initial acquisition search window 500 is based on the standard

[4] See Appellants' specification, page 6, lines 10-19.
[5] See Appellants' specification, page 6, line 20 – page 7, line 4.
[6] See Appellants' specification, page 7, lines 20-22.

search window used just before the mobile terminal enters the inactive period. The initial acquisition search window 500 exists as a subset of the full search window, which is WIN_SRCH_MAX wide. The "distance" from the reference zero to W_{0s} is a delay corresponding to a certain number of, for example, full chip or ½-chip shifts as discussed above, relative to the conventional art.

In other words, the conventional process illustrated in Figure 3, is delayed (i.e., the reference signal is shifted initially by W_{0s}), so that the process starts at a point corresponding to, for example, the W_{0s}th input signal/reference signal relative shift. Likewise, the process stops at, for example, the W_{0e}th input signal/reference signal shift. In net effect, this defines the smaller initial acquisition search window in accordance with an exemplary embodiment of the present invention. Thereafter, the process may start at an earlier shift point and end at a relatively later shift point.[7]

The signal shift controller 612 may be additionally designed to delay the start of the search and to conclude the search early (i.e., relative to WIN_SRCH_MAX). This pre-shifting may be accomplished by controlling signal shift controller 612 to delay the start of the acquisition search and to cause an early stop thereto. In an example, the signal shift controller 612 may be controlled so as to define an initial acquisition search window corresponding to the standard search window used just before entering the inactive period. \

For example, as illustrated in Fig. 5, the signal shift controller 612 may be constructed so as to use a determination by discriminator 316 that a viable multipath component was not detected in the instant search. According to the example embodiments, the search may either

[7] See Appellants' specification, page 11, line 18 – page 12, line 11.

be repeated using the same windows, or may be performed using an incrementally wider search window, in which the search window grows in proportion to the length of the inactive period.[8]

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

(a) Claims 1-9 and 13-16 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Figures 1-3 of the instant application (hereinafter Applicants Prior Art ("APA")) in view of Hutchison, IV et al. (hereinafter "Hutchison") (USP 5,790,589).

(b) Claims 10-12 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over the APA in view of Hutchison.

(7) ARGUMENT:

A. Claims 1-9 and 13-16 are not rendered obvious over the APA in view of Hutchison

Appellants respectfully submit that neither the APA nor Hutchison, singly or in combination, teach or suggest a method for detecting a multipath component of packet data at a receiver, comprising, *inter alia*:

> searching for a multipath component during an inactive period of said data transmission, including defining a dynamic acquisition search window having a time width which increases in proportion to a time duration of the inactive period (underlining for emphasis)

as recited in claim 1, and as similarly recited in claim 13.

Appellants agree with the Examiner that the APA fails to teach or suggest "an adaptive search window associated with the inactive period".[9] Yet, the Examiner attempts to cure the

[8] See Appellants' specification, page 12, line 12 – page 13, line 4.

admitted deficiencies in the APA by alleging that Hutchison teaches the adaptive search window associated with the inactive period.

However, the search window of Hutchison is completely different from the dynamic acquisition search window recited in claims 1 and 13. Hutchison merely discloses a system and method that determines whether the expected location of a pilot channel in a PN code sequence (i.e., the PN code phase offset) has been detected in an initial search window centered on the expected pilot PN code phase offset.[10] If the actual location of the pilot channel in the PN code sequence is not detected in the initial search window, a new search window is defined. The new search window is advanced in the PN code sequence from the initial search window. If the actual location of the pilot channel in the PN code sequence is not detected in the new search window, a subsequent search window is defined which is retarded in the PN sequence from all previous search windows.

This iterative "spiral" searching method may be repeated with increasingly divergent and/or alternating advanced and retarded search windows, until either the actual location of the pilot channel in the PN code sequence is detected, or a predetermined maximum number of iterations has occurred.[11] That is, the acquisition of the pilot channel is detected in a subsequent search window, rather than in the same window, which is a dynamic search window having varying time width.

Further, Hutchison is completely silent with regard to the width of the search window increasing in proportion to a time duration of the inactive period as recited in claim 1. In fact,

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[9] See Office Action, page 2, paragraph 4.
[10] See Hutchison, Abstract
[11] See Hutchison, col. 3, lines 50-63.

Hutchison discloses that the new search window is preferably of the same duration as the initial search window.[12]

Accordingly, adopting the re-acquisition process of Hutchison would not render a dynamic acquisition search window having a time width which increases in proportion to a time duration of the inactive period, as recited in claim 1, and as similarly recited in claim 13. For at least these reasons, Appellants submit that the references fail to teach each and every feature recited in independent claims 1 and 13.

Rejection fails test for establishing prima facie case of obviousness

Notwithstanding the above, the rejection is deficient as against the weight of case precedent directed to obviousness rejections under 35 U.S.C. § 103. The claimed invention is directed to a method for detecting a multipath component of packet data at a receiver, whereas Hutchison is directed to a method for reacquiring a pilot channel. In fact, there is no real method disclosed in Hutchison that is relied on by the Examiner, even remotely detecting a multipath component across a width of an acquisition search window.

Appellants direct the Examiner's attention to two recent cases decided by the Court of Appeals for the Federal Circuit (CAFC), In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed.Cir. 1999) and In re Kotzab, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed.Cir. 2000). Both of these cases set forth very rigorous requirements for establishing a *prima facie* case of obviousness under 35 U.S.C. §103(a). To establish obviousness based on a combination of elements disclosed in the prior art, there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant. The motivation, suggestion or teaching may come explicitly from one of the

[12] See Hutchison, col. 8, lines 40-42.

following: (a) the statements in the prior art (patents themselves), (b) the knowledge of one of ordinary skill art, or in some cases, (c) the nature of the problem to be solved. See Dembiczak 50 USPQ at 1614 (Fed.Cir. 1999).

In Kotzab, the CAFC held that even though various elements of the claimed invention were present (in two separate embodiments of the same prior art reference), there was no motivation to combine the elements from the separate embodiments, based on the teachings in the prior art.

In order to establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), the Examiner must provide particular findings as to why the two pieces of prior art are combinable. See Dembiczak 50 USPQ2d at 1617. Broad conclusory statements standing alone are not "evidence".

The Examiner's alleged motivation for combining APA with Hutchison, (e.g., "so that when the transmission is not restarted (206) in the prior art Figure 2 of the instant application, it is necessary to advance the window end point or retard the window start point alternatively as taught by Hutchison in order to achieve the goal of having an adaptive search window associated with the inactive period")[13], is not explicitly suggested in either the APA and/or Hutchison, is not obvious as common knowledge in the art, and does not result from the nature of any problem to be solved in either the APA, or Hutchison.

Appellants have read Hutchison in its entirety several times, and do not see how, in reading this reference, one of ordinary skill in art would think to combine Hutchison with the APA. The Examiner has not identified any teaching or suggestion, anywhere in the APA

[13] See Office Action, paragraph bridging pages 2 and 3.

and/or Hutchison, that would lead one skilled in the art to look to Hutchison in order to employ an adaptive search window associated with an inactive period.

Accordingly, Appellants respectfully submit that claims 1 and 13 are allowable for at least the above reasons, including that the Examiner has failed to establish a proper *prima facie* case of obviousness under 35 U.S.C. 103(a), in view of Dembiczak and Kotzab

Examiner using Impermissible Hindsight.

The Examiner is using impermissible hindsight reconstruction to reject the claims. The Examiner has used the present application as a blueprint, selected Appellants' own prior art in the instant disclosure as the main methodology, and then searched other prior art for the missing step of functions without identifying or discussing any specific evidence of motivation to combine, other than providing conclusory statements regarding the knowledge in the art, motivation and obviousness.

The Federal Circuit has noted that the PTO and the courts "cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention," In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1780, 1783 (Fed. Cir. 1988), and that the best defense against hindsight-based obviousness analysis is the rigorous application of the requirement for a showing of a teaching or motivation to combine the prior art references. Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. Dembiczak, 50 USPQ2d at 1617. Appellants respectfully submit that claims 1 and 13 are allowable for at least this additional reason.

Examiner has not provided requisite motivation to combine references

The Examiner has not provided the requisite evidence to support his allegation of motivation to combine the APA and Hutchison, so as to render obvious that which Appellants have described. The essential factual evidence on the issue of obviousness is set forth in Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966) and extensive ensuing precedent. The patent examination process centers on prior art and the analysis thereof. When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See, e.g., McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001) ("the central question is whether there is reason to combine [the] references," a question of fact drawing on the Graham factors).

The Examiner has not provided the requisite showing of a suggestion, teaching, or motivation to combine the prior art references to reject the claims in the present application. "The factual inquiry whether to combine references must be thorough and searching." Id. It must be based on objective evidence of record. This precedent has been reinforced in myriad decisions, and cannot be dispensed with. See, e.g., Brown & Williamson Tobacco Corp. v. Philip Morris Inc., 229 F.3d 1120, 1124-25, 56 USPQ2d 1456, 1459 (Fed. Cir. 2000) ("a showing of a suggestion, teaching, or motivation to combine the prior art references is an 'essential component of an obviousness holding'") (quoting C.R. Bard, Inc., v. M3 Systems, Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998)); In re Dembiczak, 50 USPQ2d at 1617 ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."); In

re Dance, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) ("'teachings of references can be combined only if there is some suggestion or incentive to do so.'") (emphasis in original) (quoting ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)).

The Examiner must explain the reasons why one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious."); In re Fritch, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (the examiner can satisfy the burden of showing obviousness of the combination "only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references").

Accordingly, the Examiner has not adequately supported the selection and combination of Hutchison with the APA to render obvious that which Appellants have described. The Examiner's conclusory statement "so that when the transmission is not restarted (206) in the prior art Figure 2 of the instant application, it is necessary to advance the window end point or retard the window start point alternatively as taught in Hutchison" does not adequately address the issue of motivation to combine. This factual question of motivation is material to patentability, and can not be resolved on subjective belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983). The Examiner must explain the reasoning behind his findings of motivation. Simply stating

that the motivation for combining Hutchison with the APA because "it is necessary to advance the window end point or retard the window start point alternatively", without any evidentiary support whatsoever, is an insufficient explanation for the alleged combination.

Further, the Examiner is reminded that deferential judicial review under the Administrative Procedure Act does not relieve the agency (in this case the USPTO) of its obligation to develop an evidentiary basis for its findings. To the contrary, the Administrative Procedure Act reinforces this obligation. *See, e.g.*, Motor Vehicle Manufacturers Ass'n v. State Farm Mutual Automobile Ins. Co., 463 U.S. 29, 43 (1983) ("the agency must examine the relevant data and articulate a satisfactory explanation for its action including a 'rational connection between the facts found and the choice made.") (quoting Burlington Truck Lines v. United States, 371 U.S. 156, 168 (1962). In this respect, since the Examiner has not provided the requisite suggestion in the references to make his alleged combination, the Examiner rejects the precedent in In re Sang Lee, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002).

In its decision on Lee's patent application, the Board rejected the need for "any specific hint or suggestion in a particular reference" to support the combination of the references. Omission of a relevant factor required by precedent is both legal error and arbitrary agency action. See Motor Vehicle Manufacturers, 463 U.S. at 43 ("an agency rule would be arbitrary and capricious if the agency . . . entirely failed to consider an important aspect of the problem"); Mullins v. Department of Energy, 50 F.3d 990, 992 (Fed. Cir. 1995) ("It is well established that agencies have a duty to provide reviewing courts with a sufficient explanation for their decisions so that those decisions may be judged against the relevant statutory standards, and that failure to provide such an explanation is grounds for striking down the action."). As discussed in National Labor Relations Bd. v. Ashkenazy Property Mgt. Corp., 817 F.2d 74, 75 (9th Cir. 1987), an agency is "not free to refuse to follow circuit precedent."

Appellants submit that the Examiner has failed to provide a specific hint or suggestion in APA and Hutchison to support the alleged combination.

In light of the weight of the above precedent, and in addition to the reasons set forth above, Appellants respectfully submit that claims 1 and 13 are allowable. Claims 2-9 and 14-16, by virtue of their dependency from claims 1 or 13, are also allowable.

B. Claims 10-12 are not rendered obvious over APA in view of Hutchison

In addition to one or more of the above reasons set forth in section A, independent claim 10 is separately allowable. Specifically, the APA and Hutchison, individually or in combination, fail to disclose or suggest, *inter alia,* a method for acquiring a packet data multipath component at a receiver, comprising, at least:

> until the second packet data multipath component is detected, expanding the width of the acquisition search window in proportion to a period of time elapsed since loss of the first packet data multipath component and searching for the second packet data multipath component across the width of the expanded acquisitions search window.

as recited in claim 10.

Appellants submit that the APA is silent as to any teaching of expanding the width of the acquisition search window in the proportion to a period of time elapsed. The Examiner relies on Hutchison for alleging such a teaching. Hutchison merely produces a subsequent search window, rather than expanding the same acquisition search window. Thus, the combination fails to teach or suggest "expanding the width of the acquisition search window in the proportion to a period of time elapsed" as recited in claim 10. Accordingly, claim 10 and claims 11 and 12 depend thereon and are separately allowable for at least this reason.

(8) CONCLUSION

For all the reasons set forth above, Appellants' pending claims 1-16 are not rendered obvious to one skilled in the art, as asserted by the Examiner. Accordingly, it is respectfully submitted that the claimed invention should properly be patentable over the cited art. It is therefore respectfully requested that this Appeal be granted by the panel and that the Examiner be reversed.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attached: (9) Appendix: Pending claims of record

(9) CLAIMS APPENDIX:

1. A method for detecting a multipath component of packet data at a receiver, comprising:

identifying viable multipath components received by the receiver during an active period of data transmission, whereby packet data is transmitted; and

searching for a multipath component during an inactive period of said data transmission, including defining a dynamic acquisition search window having a time width which increases in proportion to a time duration of the inactive period.

2. The method according to claim 1, wherein the dynamic acquisition search window has an initial start W_{0s} and an initial end W_{0e}, a time t of the inactive period, and a start point as a function of time W_S and an end point as a function of time W_E, wherein:

$W_S = W_{0s} - (5/6)t$ when $W_{0s} - (5/6)t > 0$

and

$W_S = 0$ when $W_{0s} - (5/6)t <= 0$;

and

$W_E = W_{0e} + (5/6)t$ when $W_{0e} + (5/6)t < WIN\_SRCH\_MAX$

and

$W_E = WIN\_SRCH\_MAX$ when $W_{0e} + (5/6)t => WIN\_SRCH\_MAX$;

where WIN_SRCH_MAX is an arbitrarily selected upper limit for the maximum search window size.

3. The method according to claim 2, wherein WIN_SRCH_MAX is related to a radius of a cell associated with the receiver.

4. The method according to claim 1, wherein identifying viable multipath components during the active period of data transmission comprises searching for multipath components of packet data using a standard search window associated with a rake finger in a rake receiver having the greatest power amongst the rake fingers in the rake receiver.

5. The method according to claim 1, wherein viable multipath components received by the receiver during the active period are identified until no multipath components are received by the receiver.

6. The method according to claim 1, wherein a transmitter transmitting the packet data is a mobile terminal that moves relative to the receiver during one or both of the active period and the inactive period.

7. The method according to claim 6, wherein a width of the dynamic acquisition search window is increased in correspondence with an expected maximum speed of the mobile terminal.

8. The method according to claim 1, wherein the receiver is a mobile terminal that moves relative to a transmitter during one or both of the active period and the inactive period.

9. The method according to claim 8, wherein a width of the dynamic acquisition search window is increased in correspondence with an expected maximum speed of the mobile terminal.

10. A method for acquiring a packet data multipath component at a receiver, comprising:

associating a standard search window with a first packet data multipath component received at the receiver;

upon loss of the first packet data multipath component, defining an acquisition search window having an initial width corresponding to the standard search window;

searching for a second packet data multipath component across a width of the acquisition search window; and

until the second packet data multipath component is detected, expanding the width of the acquisition search window in proportion to a period of time elapsed since loss of the first packet data multipath component and searching for the second packet data multipath component across the width of the expanded acquisitions search window.

11. The method according to claim 10, wherein searching for the second packet data multipath component comprises:

comparing a detected signal with a reference signal;

determining a value corresponding to the comparison of the detected signal and the reference signal;

repeatedly shifting the detected signal incrementally relative to the reference signal, comparing the relatively shifted detected signal and reference signal, and determining a value

corresponding to the comparison of the detected signal and the reference signal, thereby obtaining a plurality of values corresponding to the comparisons between the detected signal and the reference signal, the incremental shifting continuing up to an instantaneous width of the acquisition search window;

identifying the highest value among the plurality of values corresponding to the comparisons between the detected signal and the reference signal; and

comparing the highest value to a threshold value, such that exceeding the threshold value corresponds with identification of the second packet data multipath component.

12. The method according to claim 1, wherein the dynamic acquisition search window has an initial start W_{0s} and an initial end W_{0e}, a time t of the inactive period and k is a constant corresponding with a maximum rate of change of roundtrip propagation delay, and a start point as a function of time W_S and an end point as a function of time W_E, wherein:

$W_S = W_{0s} - kt$ when $W_{0s} - kt > 0$

and

$W_S = 0$ when $W_{0s} - kt <= 0$;

and

$W_E = W_{0e} + kt$ when $W_{0e} + kt < WIN\_SRCH\_MAX$

and

$W_E = WIN\_SRCH\_MAX$ when $W_{0e} + kt => WIN\_SRCH\_MAX$;

where WIN_SRCH_MAX is an arbitrarily selected upper limit for the maximum search window size.

13. A method for detecting a multipath component at a receiver, comprising:

upon loss of a multipath component, searching for a new multipath component over a dynamic acquisition search window having a time width which increases in proportion to a length of time during which no multipath component is detected.

14. The method according to claim 13, wherein the dynamic acquisition search window has an initial start W_{0s} and an initial end W_{0e}, a time t of an inactive period and k is a constant corresponding with a maximum rate of change of roundtrip propagation delay, and a start point as a function of time W_S and an end point as a function of time W_E, wherein:

$W_S = W_{0s} - kt$ when $W_{0s} - kt > 0$

and

$W_S = 0$ when $W_{0s} - kt <= 0$;

and

$W_E = W_{0e} + kt$ when $W_{0e} + kt < WIN\_SRCH\_MAX$

and

$W_E = WIN\_SRCH\_MAX$ when $W_{0e} + kt => WIN\_SRCH\_MAX$;

where WIN_SRCH_MAX is an arbitrarily selected upper limit for the maximum search window size.

15. The method according to claim 13, wherein searching for the new multipath component comprises:

comparing a detected signal with a reference signal;

determining a value corresponding to the comparison of the detected signal and the reference signal;

repeatedly shifting the detected signal incrementally relative to the reference signal, comparing the relatively shifted detected signal and reference signal, and determining a value corresponding to the comparison of the detected signal and the reference signal, thereby obtaining a plurality of values corresponding to the comparisons between the detected signal and the reference signal, the incremental shifting continuing up to an instantaneous width of the acquisition search window;

identifying the highest value among the plurality of values corresponding to the comparisons between the detected signal and the reference signal; and

comparing the highest value to a threshold value, such that exceeding the threshold value corresponds with identification of the new multipath component.

16. The method according to claim 1, wherein the dynamic acquisition search window has an initial start point and an initial end point, and a dynamic start point that varies as a function of time and a dynamic end point that varies as a function of time.